

WHAT IS CLAIMED IS:

1. A self-sustaining center-anchor microelectromechanical switch comprising:
  - transmission lines formed on a substrate at a predetermined gap and
  - 5 having an input portion and an output portion;
  - ground lines formed at both sides of the transmission lines;
  - a dielectric-moving plate formed over the substrate and including a switching unit that electrically connects the transmission line during short-circuit operation;
  - 10 anchors having a self-sustaining center-anchor formed on the center of the transmission lines to support the dielectric-moving plate to the substrate; and
  - upper electrodes located in an upper portion of the dielectric-moving plate and serving as a driving electrode to the ground line,
  - 15 wherein the switching unit is operated by a bending of the dielectric-moving plate generated by a voltage difference applied to the upper electrode and the ground line, and switches the transmission lines.
2. The self-sustaining center-anchor microelectromechanical switch
- 20 of claim 1, wherein the transmission lines comprise an open portion of the transmission line used for the self-sustaining center-anchor between the input portion and the output portion.

3. The self-sustaining center-anchor microelectromechanical switch of claim 1, wherein the anchors further comprise edge-anchors and electrode anchors.

5           4. The self-sustaining center-anchor microelectromechanical switch of claim 3, wherein the edge-anchors and the dielectric-moving plate have a connecting portion for connecting with each other, the portion being inserted by corrugated patterns.

10           5. The self-sustaining center-anchor microelectromechanical switch of claim 1, wherein the self-sustaining center-anchor and the dielectric-moving plate have a connecting portion for connecting with each other, the portion being inserted by rectangular patterns.

15           6. The self-sustaining center-anchor microelectromechanical switch of claim 1, wherein the electrode anchors and the dielectric-moving plate have a connecting portion for connecting with each other, the portion being inserted by checked patterns.

20           7. A method of manufacturing a self-sustaining center-anchor microelectromechanical switch, the method comprising the steps of:

          after forming a thin film on a substrate with an insulating material, patterning the thin film using a predetermined mask;

forming transmission lines and ground lines in a patterned portion;  
depositing and patterning a sacrificial layer on the transmission lines  
and the ground lines to form a self-sustaining center-anchor;  
forming a switching unit made of a metal that electrically connects  
5 the transmission lines on the sacrificial layer during short-circuit operation;  
forming a dielectric-moving plate that allows the transmission lines  
and the ground lines to be spaced apart with a constant gap by the anchors to  
the switching unit and an upper electrode;  
forming the upper electrodes that act as a driving electrode to the  
10 ground line on the dielectric-moving plate; and  
removing the sacrificial layer formed between the dielectric-moving  
plate and the transmission line.

8. The method of claim 7, wherein, while forming the transmission  
15 lines, the transmission line is inserted between an input portion transmission  
line and an output portion transmission line to form the self-sustaining center-  
anchor.

9. The method of claim 7, wherein, when forming the ground lines,  
20 edge-anchors insulated with the ground lines for forming the edge-anchors are  
formed within the ground lines.

10. The method of claim 7, wherein, after depositing the sacrificial layer, the self-sustaining center-anchor is formed in the same direction as that of a transmission signal flow.

5            11. The method of claim 7, wherein, after depositing the sacrificial layer, edge-anchors are formed at edge portions of the dielectric-moving plate.

12. The method of claim 7, wherein, after depositing the sacrificial layer, electrode anchors are formed to provide an electrostatic force at both  
10 sides of the dielectric-moving plate.

13. The method of claim 7, wherein the anchors further comprise edge-anchors and electrode anchors.

15            14. The method of claim 13, wherein the edge-anchors and the dielectric-moving plate have a connecting portion for connecting with each other on the sacrificial layer, the connecting portion being provided with corrugated patterns.

20            15. The method of claim 13, wherein the self-sustaining center-anchor and the dielectric-moving plate have a connecting portion for connecting with each other on the sacrificial layer, the connecting portion being provided with rectangular patterns.

16. The method of claim 13, wherein the electrode anchors and the dielectric-moving plate have a connecting portion for connecting with each other on the sacrificial layer, the connecting portion being provided with  
5 checked patterns.